



Dart Hawkesbury
1270 Aberdeen St Hawkesbury, ON K6A 1K7 Canada
Tel (613) 632-5200
Fax 613 632-5246

Purchasing Receipts

PO No	Supplier	Line Item No	Rel No	Terms	Purchased Item	Description	For Part No	Project	Equipment ID	Order Qty	Due Date	Received Quantity	Accounting Job No	Container No	Status	Receive Date	Price/Unit	Aging Days	Past Due	Total	Supplier Name
PO041480	MEC002-VU	1	1	Net 30	M304R5.500	304 SS Round bar 5.500 cut to size: 10.625" ; MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft				9	11/9/2018	9		S125168	Stock	11/6/2018	\$ 230.40 / ft	0		\$2,040.00	Metaux Castle
		2			M6061T6R5.500	6061T6 Round Bar 5.500" Dia. ; MATERIAL: 6061-T6/T651/T65107/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ-AA-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221				3		3		S125169	Stock	11/6/2018	\$ 91.82 / ft	0		\$305.76	Metaux Castle
		5			MT-4140QT-R6.500	AISI 4140 Q&T Round Bar 6.500" Dia. MATERIAL: AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR ASTM 4140 QT or ASTM 4142 QT						3		S125170	Stock	11/6/2018	\$ 119.25 / ft	0		\$357.75	Metaux Castle
		7			M17-4-H1150-R1.500	17-4 SS Round Bar 1.500" ; MATERIAL: 17-4 PH CONDITION H1150 MATERIAL: 17-4 PH / S 17400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564 H1150 MIN. YIELD TENSILE 105 KSI / MIN. ULTIMATE TENSILE 135 KSI receive ft				12		13		S125171	Stock	11/6/2018	\$ 28.45 / ft	0		\$362.74	Metaux Castle
										Total:		27								\$3,066.25	



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO041480**

Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

PO No: PO041480

PO Date: 10/26/18

Due Date: 11/9/18

Purchase Order

Revision:

Revision Date:

Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Via: Ground

Pynt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED
OCT 27 2018

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1 <i>At</i>		M304R5.500		304 SS Round bar 5.500 cut to size: 10.625" : MATERIAL: AISI 304/316 SS ROUND BAR AS PER ASTM A276 NOTE: AISI 303 NOT ACCEPTABLE receive ft	Firmed	-	11/9/18	8.854 ft	0 ft <i>8.854 ft</i>	9 ft	\$230.404333/ft	\$2,040.00 <i>At 18/11/06</i>
Line Item Note NOTE 10 PCS CUT TO SIZE 10.625" = 8.854 FT												
2 <i>At</i>		M6061T6R5.500		6061T6 Round Bar 5.500" Dia. : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ- AA-200/8 OR AMS-QQ-A- 200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221	Firmed	-	11/9/18	3 ft	0 ft <i>3.33 ft</i>	3 ft	\$91.82/ft	\$275.46 <i>At 18/11/06</i>
3		M6061T6R6.000		Round Bar 6.00" : MATERIAL: 6061- T6/T651/T6510/T6511/T62 ALUMINUM ROUND BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117 4128/4115/4116 OR QQ- AA-200/8 OR AMS-QQ-A- 200/8 OR AMS 4160 OR ASTM B221 OR ASTM B221 receive ft	Firmed	-	11/9/18	12 ft	0 ft	12 ft	\$89.22/ft	\$1,070.64

Line Item Note 2 PCS OF 6 FT

Plex 10/26/18 11:33 AM dart.lavoie.chantal



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER PO041480

Items												
Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4		MT-1144-R4.500		AISI 1144 Stressproof Round Bar 4.500" : MATERIAL: AISI 1144 STRESSPROOF STEEL ROUND BAR ASTM A311 or UNS G11440	Firmed	-	11/9/18	6 ft	0 ft	6 ft	\$122.00/ft	\$732.00
5 ✓ H		MT-4140QT-R6.500		AISI 4140 Q&T Round Bar 6.500" Dia. MATERIAL : AISI 4140 QUENCHED & TEMPERED STEEL ROUND BAR ASTM 4140 QT or ASTM 4142 QT	Firmed	-	11/9/18	3 ft ✓ 3ft	0 ft	3 ft At 18/11/06	\$119.25/ft	\$357.75
6		MT-4140QT-R2.500		AISI 4140 Quenched & Tempered Steel Round Bar 2.500" Dia. : AISI 4140 Q&T Round Bar : MAT'L: AISI 4130 QUENCHED & TEMPERED ROUND BAR AS PER ASTM 4140 QT OR ASTM 4142 QT	Firmed	-	11/9/18	12 ft	0 ft	12 ft	\$20.52/ft	\$246.24
7 ✓ H		M17-4-H1150-R1.500		17-4 SS Round Bar 1.500" : MATERIAL: 17-4 PH CONDITION H1150 MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR GRAIN MUST BE ALONG LENGTH OF BAR MINIMUM YIELD STRENGTH PER TABLE MINIMUM ULTIMATE STRENGTH PER TABLE SPECIFICATION: AMS 5643 OR ASTM A564 H1150 MIN. YIELD TENSILE 105 KSI / MIN. ULTIMATE TENSILE 135 KSI receive ft	Firmed	-	11/9/18	12 ft ✓ 12.75ft	0 ft	12 ft At 18/11/06	\$28.45/ft	\$341.40

Line Item Note MATERIAL: 17-4 PH / S I7400 / TYPE 630 SS ROUND BAR
GRAIN MUST BE ALONG LENGTH OF BAR
MINIMUM YIELD STRENGTH PER TABLE
MINIMUM ULTIMATE STRENGTH PER TABLE

SPEC'S AMS 5643 OR ASTM A564

Grand Total: \$5,063.49



Castle Metals®

A. M. Castle & Co.

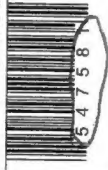
PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 1

Shipment No:3747716

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 05-NOV-18	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOU LIN	BOL No 3747716-2		

Shipment Details		Final Destination Branch - TOR	
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Order No 5301505	Line No 1	Item No 14876.MO	Description 5.5000.RD.304/304L.STAINLESS.RT.ANN.132.0000-156.0000 CUT TO 10.625 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: ASTM A276			
Purchase Order No 41480	Part Number		Ordered Qty 10.00 PCS	Invoice Qty 10.00 PCS		
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS						
Delivery No. 122318805	Mill/Source	Heat Number 	Mech Id	PCS 10	Width (IN)	Length (IN)
						Shipped Qty(LBS) 735.6403

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Name: SUE KALOUS
Date: NOV 05 2018	





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A. M. Castle & Co.

**PACKING SLIP/
CERTIFICATE OF CONFORMANCE**

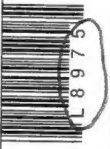
Page 1 of 2

Shipment No:3747716

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 05-NOV-18	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN	BOL No 3747716-2		

Shipment Details

Final Destination Branch - TOR

Order No 5301505	Line No 5	Item No 41424.MO	Description 6.5000.RD.4140.ALLOY.HR.Q & T.SR/SF.285/321 BHN.240.0000-288.0000 CUT TO 36 IN (+ .2500/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: ASTM A29,ASTM A304,ASTM A322,ASTM A434,UNS G41400			
Purchase Order No 41480	Part Number		Ordered Qty 1.00 PCS	Invoice Qty 3.0000 FT		
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS						
Delivery No. 122343154	Mill/Source	Heat Number  L 8 9 7 5	Mech Id Q6368	PCS 1	Width (IN)	Length (IN) 347.2222
				Shipped Qty(LBS)		

We hereby certify the material covered by this certification conforms in accordance with the above specifications in accordance with the applicable requirements of the specification. All claims for defective material are waived unless made in writing within 60 days of the shipment. Material cut to the correct size, or material cut by the customer, shall be returned for credit.

SUE KALOUS

NOV 05 2018

Date Printed: 05-NOV-2018 02:42:04 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

Reviewed by Authorized Castle Metals Representative:	Date: NOV 05 2018	Name: SUE KALOUS
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Castle Metals

HEAT NUMBER: 547581

MECHANICAL ID:

ITEM CODE: 14876

PO/LINE NUMBER: 452142

RECEIPT NUMBER:

SUPPLIER: MAGELLAN

SPECIFICATION:

LCS: NO

COMMENT:

APPROVED: LC



CERTIFICATE

No. A/17-635496 Rev 01

Date 2017-02-06 Page 1/3

Rev.date 2017-03-20

INSPECTION CERTIFICATE acc to
EN 10204 3.1

SANDVIK MATERIALS TECHNOLOGY
P O BOX 1220
SCRANTON, PA 18501
USA

Customer References		Sandvik References	
211267	Customer order 2016-11-14	Order No. 66680	Subs No. ABSMT Dispatch note 48822/53
450-00991	MAGELLAN CORE	ABSMT No. 284-23674	C.Code 03
Material description		Steel/material Designations	
HOT WORKED STAINLESS BAR STEEL		Sandvik	
ROLLED		SANMAC 304 SANMAC 304L	
ANNEALED		AISI UNS	
PEEL TURNED AND POLISHED		304/304L S30400/S30403	
CONTINUOUS CAST		W.nr EN no	
Melt Source		1.4301 1.4301/1.4307	
SMT SANDVIKEN SWEDEN			
Steel making process		Origin	
ELECTRIC FURNACE+AOD Sweden			
Technical requirements			
EN 10088-3:-2005, MIC 1702 SUPPLEMENT AISI 304, API 6A PSL3,			
AMS-QQ8-763C, NACE MR0175/ISO 15156-3:2009, NACE MR0103:2012			
ASTM A-276-16A, ASTM A-479-16A, ASME SA-479-ED-15 SEC II PART A			
Suitable for manufacturing of components in acc. with ASTM A-182-16A			
EXTENT OF DELIVERY			
It	Product designation	Heat	Lot
03	MBR-SANMAC-304L-5-1/2"	547581	57272
			Pieces
			6
			Kg
			2601.0
			Lbs
			5735.00
			Total
			6
			2601.0
			5735.00
TEST RESULTS			
Chemical composition (weight%)			
ASTM A-751-14A			
Heat	C	Si	Mn
547581	0.011	0.23	1.73
	W	Co	V
547581	0.02	0.098	0.048
			P
			0.029
			S
			0.028
			Cr
			18.34
			Ni
			8.22
			Mo
			0.38
			Ti
			<0.003
			Cu
			0.24
			Al
			0.003
			Nb
			<0.01
			N
			0.073
Tensile test at room temperature			
Longitudinal			
	Yield strength		Tensile strength
	Mpa	MPa	Mpa
	Rp0.2	Rp1.0	Rm
Lot	250	301	591
57272			
	Elongation		Red.of Area
	%	%	%
	A	2"	Z
	57	57	77
Quality assurance - Viktor Hellberg/QA-manager Primary Products			
MTC Service / Certificates			

AB SANDVIK MATERIALS TECHNOLOGY Reg No. 556234-6832 VAT No. SE663000-060901
SE-81181 SANDVIKEN SWEDEN www.smt.sandvik.com mtc_service.smt@sandvik.com



CERTIFICATE

No. A/17-635496 Rev 01

Date 2017-02-06 Page 2/3

Rev.date 2017-03-20

Hardness test

Mid-Radius

	Min	Max	Average
Lot	HB	HB	
57272	155	162	157

Surface

	Min	Max
Lot	HV	HV
57272	201	207

Grain size acc to ASTM E-112 ED-13

Lot	
57272	6.5 6.5

Impact test, J, 20 °C

	Single values	Average
Lot	Joule	Joule
57272	427 423 346	399

Impact test, J, 20°C, Transversal acc. to ISO 148-1

	Single values	Average
Lot	Joule	Joule
57272	82 88 82	84

Following controls/tests have been satisfactorily performed:

- Intergranular corrosion test acc to ASTM A-262 PR.E
- Material Identification.
- Macrostructure
- ASTM-A 388 satisfactory ASME VIII Division 2
- Visual inspection and dimensional control.

Heat Treatment:

Heat treated according to ASTM A484 at the minimum temperature of 1040°C and cooled rapidly enough to avoid unacceptable grain boundary carbide precipitations.

Cleanliness according to ASTM E-45 method A.

Lot	Type	Thin	Heavy
57272	A	1	0.3
	B	0	0.0
	C	2	0.4
	D	1	0.0

Melt Source

Heat 547581 SMT SANDVIKEN SWEDEN



CERTIFICATE

No. A/17-635496 Rev 01

Date 2017-02-06 Page 3/3

Rev.date 2017-03-20

ASTM A-314-13A, ASTM A-484-14A, ASTM A-751-14A,
 ASTM A-370-13 (hardness test)
 ASTM A-473-13 (Chemical composition and mechanical properties only)
 ASME SA 193 section 2 Part A Grade B8M (Chemical composition only)
 ASME SA320 (Studs and bolts) Class 1B8M (Chemical composition only)
 ASTM A-193-14 (Fasteners) Grade B8 (Chemical composition only)
 ASTM A-320-14 Class 1 B8 (Bolting materials): (Chemical composition only)
 ASME SA-182 section 2 part A
 AMS 5639
 AMS 5647
 API 6A-PSL3 (Ultrasonic testing)
 RoHS Compliant

Final product meets the maximum levels of inclusions, thin 3.0 and heavy 2.5, as per ASTM E45 Method A.

Round Stainless Steel Bar material

The raw material is free from radioactive contamination.

Material free from mercury contamination.

Reduction ratio= 5.7:1

No welding or weld repair.

This Material complies with DFARS 252.225-7014 & Alternate 1

Country Of Origin: Sweden

This Material does not comply with FAR BAA (FAR 52.225-1)

This Material complies with DFARS BAA (DFARS 252.225-7001) and FAR TAA (FAR 52.225-5)

The material is conforming to directive 2005/53/EC, 2002/95/EC and CD 2005/618/EC.

This is to certify that the contents of this certified material test report are correct and accurate and that all test results and operations are in compliance with the material specification.

The delivered products comply with the specifications and requirements of the order.

The material is manufactured according to a Quality system, approved and registered to ISO 9001:2008.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of AB Sandvik Materials Technology. Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.

The certificate is produced with EDP and valid without signature.

AB SANDVIK MATERIALS TECHNOLOGY Reg No. 556234-6832 VAT No. SE663000-060901
 SE-81181 SANDVIKEN SWEDEN www.smt.sandvik.com mtc_service.smt@sandvik.com

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL: AISI 304/316 SS ROUND BAR
(NOTE: AISI 303 NOT ACCEPTABLE)

SPECIFICATION:

ASTM A276

PART NUMBER

M304R0.000

DIA.

WHERE "D.000" = DIAMETER IN INCHES

EG. 0.75" ROUND BAR = M304R0.750

RELEASED
R 08/08/25/17

REVISION	DATE	BY	DATE
1	09.07.15	CP	09.07.15
2	08.07.15	AJS	08.07.15
3		BY	DATE
DESCRIPTION			
DART AEROSPACE LTD			
HAWKESBURY, ONTARIO, CANADA			
DESIGN	DRAWING NO		
DRAWN	M304R		
CHECKED	M304R		
MFG APPR.	M304R		
APPROVED	M304R		
DE APPR.	M304R		
DATE	09.07.15		
TITLE			
304/316 ROUND BAR			
SCALE			
N/S			
COPYRIGHT © 2008 BY DART AEROSPACE LTD			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M304RS.500
 DATE: 18/11/06

PO / BATCH NO.: P0041480/S125168

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 8.854ft
 QUANTITY INSPECTED: 8.854ft
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 5.500"
 THICKNESS RECEIVED: 5.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORROSION	Y	<input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	ASTM A276
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	HT: 547581
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y	<input checked="" type="checkbox"/> N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>At</u>	SIGNED OFF BY: _____
DATE: <u>18/11/06</u>	DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

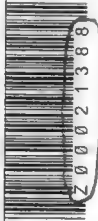
Page 1 of 1

Shipment No:3747716

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped	F.O.B.	Freight Terms		Carrier	BOL No		
05-NOV-18	ORIGIN	Prepaid		MANITOULIN	3747716-2		

Shipment Details

Final Destination Branch - TOR

Order No	Line No	Item No	Description				
5301505	2	30490	5.5000.RD.6061.T6511.ALUMINUM.EXT 39"LONG SPECIFICATIONS: AMS-QQ-A-200/8				
Purchase Order No	Part Number		Ordered Qty	Invoice Qty			
41480			39.00 IN	3.3333 FT			
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS							
Delivery No.	Mill/Source	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
122317036				1		40.0000	93.3333

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material. Including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

NOV 05 2018 Date: **SUE KALOOS** Name:



Castle Metals

HEAT NUMBER: Z00021388

MECHANICAL ID:

ITEM CODE: 30490

PO/LINE NUMBER: 463331

RECEIPT NUMBER:

SUPPLIER: KAISER

SPECIFICATION:

LCS: NO

COMMENT:

APPROVED: AMB

KAISER ALUMINUM FABRICATED PRODUCTS

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
5205 KAISER DRIVE
KALAMAZOO, MI 49048

CUSTOMER PO NUMBER: 463331-1		CUSTOMER PART NUMBER: 30490		PRODUCT DESCRIPTION: KAISERSELECT PRECISION ROD 5.500 +/-0.017	
KAISER ORDER NUMBER: 6049199	LINE ITEM: 001	SHIP DATE: 04/12/2018	KAISER LOT NUMBER: Z00021388	ALLOY: 6061	TEMPER: T6511B
WEIGHT SHIPPED: 3018.000 LB	QUANTITY: 9.000 PCS	B/L NUMBER: 622458	DIAM/DAF/THKNS: 	WIDTH: 	LENGTH: 12.000 FT
SHIP TO: A. M. CASTLE & CO. 3800 ENTERPRISE DRIVE JANESVILLE, WI 53546 USA			SOLD TO: A. M. CASTLE & CO. 1420 KENSINGTON ROAD OAK BROOK, IL 60523 USA		

Actual Physical Properties

REFERENCE	DASH#	SAMPLE#	UTS (KSI)	YTS (KSI)	ELONG%	HARDNESS	CONDUCT.	BEND
Z00021388	0001	0001	58.9	56.0	12.3	RE 94	N/A	N/A
Z00021388	0001	0002	57.2	54.4	12.0	RE 93	N/A	N/A
Z00021388	0002	0001	54.7	51.4	12.1	RE 92	N/A	N/A

Chemical Composition (wt%), Aluminum Remainder

LIMITS	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Bi	Zr	Ea	Tot
Maximum	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15	NA	NA	NA	0.05	0.15
Minimum	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	NA	NA	NA	0.00	0.00
108297	.78	.27	.28	.10	.96	.09	.03	.02	.00	.00	.00	.01	.03

Applicable Requirements:

PER ASTM-B221-14, STENCILED ASME-SB221 2009 SECT II PER AMS-QQ-A-200/8A UNS# A96061
MEETS ALL SPECIFICATION REQUIREMENTS FOR 6061-T6511/T6 ELEVATED MINIMUM MECHANICAL
PROPERTIES AS FOLLOWS: UTS = 42.0 KSI MIN YIELD = 38.0 KSI MIN ELONGATION = 10.0% MIN

Miscellaneous Notes

MANUFACTURED IN USA MELTED IN USA
MERCURY IS NOT A NORMAL BACKGROUND ELEMENT IN ALUMINUM ALLOYS. NEITHER MERCURY NOR ANY
OF ITS COMPOUNDS ARE UTILIZED BY KAISER ALUMINUM IN THE MANUFACTURE OF THIS MATERIAL.
MATERIAL COMPLIES WITH FAR BAA (FAR 52.225-1, BUY AMERICAN ACT- SUPPLIES), DFARS BAA
(DFARS 252.225-7001 BUY AMERICAN ACT & BAL OF PAYMENTS PROG), AND FAR TAA (FAR 52.225-5
TRADE AGREEMENTS).

Plant Serial: 00330049

Kaiser Order Number: 6049199

Line Item: 001

KAISER

ALUMINUM

FABRICATED PRODUCTS

KAISER ALUMINUM
FABRICATED PRODUCTS, LLC
5205 KAISER DRIVE
KALAMAZOO, MI 49048

CERTIFIED TEST REPORT

<http://Online.KaiserAluminum.com>

CERTIFICATION

Kaiser Aluminum Fabricated Products, LLC hereby certifies that metal shipped under this order has been inspected and tested and found in conformance with applicable specifications forming a part of the description set forth in Kaiser's sales acknowledgement form. Any warranty is limited to that shown on Kaiser's general terms and conditions of sale. Test reports are on file, subject to examination.

Aimee L. Macnowski, Quality & Technology Manager



SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL 6061-T6 6061-T6510/T6511/T662 ALUMINUM ROUND BAR
SPECIFICATION: QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
PART NUMBER: M6061T6R(D ODD)
DIA.
WHERE "D ODD" = DIAMETER IN INCHES
EG. 5/8" ROUND BAR = M6061T6R0.625

RELEASED
N 2009-09-09
NAD

B	REF OR MAT DWD ADO B2-18 B221 (REC (2N DR-1))	UP	99.07.13
A	NEW ISS.	DS	01.06.08
REV	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MTG. APPR			
APPROVED			
DE APPR			
DATE	09.07.13		
DART AEROSPACE LTD HAWKESBURY, ONTARIO CANADA			
DRAWING NO. M6061T6R			
TITLE 6061-T6 ROUND BAR			
REV B			
SHEET 1 OF 1			
SCALE			
NTS			
COPYRIGHT © 2001 BY DART AEROSPACE LTD			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M606176R5.500
 DATE: 18/11/06

PO / BATCH NO.: P0041480/5125169

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 3.33ft
 QUANTITY INSPECTED: 3.33ft
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 5.500"
 THICKNESS RECEIVED: 5.500"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	N	
CORROSION	Y	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	N	ASTM B221
CORRECT THICKNESS	<input checked="" type="checkbox"/>	N	
PHOTO REQUIRED	Y	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	N	Lot: 200021388
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION		ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AK</u>	SIGNED OFF BY: _____	
DATE: <u>18/11/06</u>	DATE: _____	

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

CERTIFICATE OF MATERIAL TEST REPORTS

H-A Industries A Division of A. M. Castle & Co. 4527 Columbia Avenue Hammond, IN 46327										Customer: A. M. Castle & Co. 1420 Kensington Road Suite 220 Oak Brook, IL 60523													
MANUFACTURER (MILL)					CUST. ORDER NO.																		
TIMKENSTEEL CORPORATION																							
IC	HEAT NO.	MECHANICAL ID	ORDER NO.		SHIP QUANTITY		DATE																
41424	L8975	Q6368	11675464		8000		15-MAR-18																
DESCRIPTION OF MATERIAL																							
6.5000.RD.4140 ALLOY HR.Q & T.SR/SF.285/321 BHN.240.0000-288.0000																							
CHEMICAL ANALYSIS %																							
C	MN	P	S	SI	CU	NI	CR	MO	AL														
.42	.96	.010	.030	.22	.25	.12	.99	.20	.036														
JOMINY HARDENABILITY Rc																							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32
57	57	57	56	56	55	55	55	55	54		53		51		49	48	46		43		40		38
METALLURGICAL																							
MACROETCH						NAFTA YES		GRAIN SIZE															
S: 2								5															
R: 2																							
C: 3																							
CONTINUOUS CAST YES		REDUCTION RATIO 13				FROM IC 11304																	
COUNTRY OF MANUFACTURE United States		COUNTRY OF MELT US																					
HEAT TREATMENT																							
AUSTENITIZE MINUTES		AUSTENITIZE TEMP °F		TEMPER MINUTES		TEMPER TEMP °F		WATER QUENCH TEMP															
84		1675		86		1320		95															
HARDNESS										MECHANICAL													
Location	Type		Location	Type		Location	Tensile PSI	Yield .2% PSI	ELONG 2" %	R.A. %													
SURF	HBW	289	MID	HBW	269	MID	125843	97091	20	53.7													
SURF	HBW	291																					
MID	HBW	259																					
CONFORMANT TO SPECIFICATIONS																							
ASTM A29-16 ASTM A322-13 ASTM A304-16 ASTM A434-17 CLASS BC UNS# G41400																							

H-A INDUSTRIES CERTIFIES THAT APPROPRIATE INFORMATION IS TAKEN FROM TEST REPORTS FURNISHED TO US BY OUR SUPPLIER AND WHICH ARE ON FILE IN OUR OFFICE. H-A INDUSTRIES CERTIFIES THAT THE MATERIAL LISTED HEREIN HAS BEEN INSPECTED AND TESTED IN ACCORDANCE WITH METHODS PRESCRIBED IN THE GOVERNING SPECIFICATIONS. THE RESULTS OF INSPECTION AND TESTING CONFORM TO THE SPECIFICATIONS LISTED INCLUDING ASTM A370 LATEST REVISION AND EN 10204:2004 3.1.

H-A CERTIFIES THAT THE METAL WHICH IS THE SUBJECT OF THIS CERTIFICATION IS MERCURY FREE AND WAS NOT EXPOSED TO ANY RADIOACTIVE SOURCE MATERIAL DOES NOT CONTAIN ANY POLYBROMINATED BIPHENYLS (PBB) OR POLYBROMINATED DIPHENYL ETHERS (PBDE). NO WELD OR WELD REPAIR WAS PERFORMED ON THIS MATERIAL.

THE RECORDING OF FALSE, FICTITIOUS OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTE.

NAME: JAN L. CARUSO

TITLE: MANAGER OF TECHNICAL SERVICES

SIGNATURE: *Jan L. Caruso*

8 7 6 5 4 3 2 1

REV.	DESCRIPTION	ECN #	DATE	BY	APPROVED
A	NEW ISSUE	17-790	17.12.13	VM	ML

SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL : AISI 4140 ROUND BAR
MINIMUM ROCKWELL C = 20 Rc
MAXIMUM ROCKWELL C = 38 Rc

SPECIFICATION: ASTM A29/ AMS 6349, AMS 6382, AMS 6529

PART NUMBER: MT-4140-R-ID.DDD]
WHERE "D.DDD" = DIAMETER IN INCHES
EX. 4" ROUND BAR = MT-4140-R-4.000

DART AEROSPACE	
TITLE AISI 4140 ROUND BAR	
PART NO MT-4140-R	REV A
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS DIMENSIONS APPLY AFTER FINISHING	
DESIGNED BY VM 17/12/13	INITIALS AND DATE
DRAWN BY VM 12/13/2017	
CHECKED BY ML 12/10/2017	
APPROVED BY DP 12/20/2017	
APPROVED BY ML 12/20/2017	
SCALE NATURAL	SCALE NATURAL
SHEET NO 1 OF 1	SHEET NO 1 OF 1
THE DRAWING IS THE PROPERTY OF DART AEROSPACE. IT IS TO BE USED ONLY FOR THE PURPOSES SPECIFIED. IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, WITHOUT PERMISSION IN WRITING FROM DART AEROSPACE.	

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: MT-4140QT-R6500
 DATE: 10/11/06

PO / BATCH NO.: P0041480/5125170

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 34
 QUANTITY INSPECTED: 34
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 6.500"
 THICKNESS RECEIVED: 6.500"
 SHEET SIZE ORDERED: -
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CORRECT FINISH	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORROSION	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>ASTM A29</u>
CORRECT THICKNESS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
PHOTO REQUIRED	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>MT: L8975</u>
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
DOES THIS REQUIRE AN EXTRUSION REPORT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AK</u> DATE: <u>10/11/06</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE


Page 1 of 1

Shipment No:3747716

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 05-NOV-18	F.O.B. ORIGIN	Freight Terms Prepaid	Carrier MANITOULIN	BOL No 3747716-2			

Shipment Details

Final Destination Branch - TOR

Order No 5301505	Line No 7	Item No 39894	Description 1.5000.RD.17CR-4NI.STAINLESS.CF.H1150.132.0000-156.0000 SPECIFICATIONS: AMS 5643				
Purchase Order No 41480	Part Number		Ordered Qty 12.00 FT	Invoice Qty 12.7500 FT			
Details ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #'S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS							
Delivery No. 122318871	Mill/Source VALBRUNA CORPORATION	Heat Number 	Mech Id	PCS 1	Width (IN)	Length (IN) 153.0000	Shipped Qty(LBS) 74.5000

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date: **NOV 05 2018** Name: **SUE KALOUS**

Date Printed: 05-NOV-2018 02:42:04 PM

Castle Metals

HEAT NUMBER: 266616

MECHANICAL ID:

ITEM CODE: 39894

PO/LINE NUMBER: 390024

RECEIPT NUMBER:

SUPPLIER: VALBRUNA

SPECIFICATION:

LCS: NO

COMMENT:

APPROVED: LC



CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: **EN 10204 (2004) , 3.1**

Certificato nr **MEST944876 / 2016 /**

Cliente / Besteller/Purchaser/Client
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801 - FORT WAYNE, IN 46801 - US

Stato di fornitura **Hot rolled Polished Aged Peeled**
Lieferzustand
Delivery state
Etat de livraison

Produzione
Hersteller/Hersteller/producer
ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. **50080 390024 CASTLE**
Bestell
Your order
Commande

Tipi di Elaborazione **E+AOD**
Erschmelzungsart
Melting process
Mode d'élaboration

Marchi di Fabbrica
Zeichen des Lieferanten
Trade marks
Siglas de fábrica/producer



Conferma ordine nr **E16007345**
Werkstoff Order/Order

Qualità **T-630 H1150 #39894**
Werkstoffbezeichnung

Punzone del Collaudatore
Stempel des Werkstoffbeständigen
Inspector's stamp/Stamp of the Inspector

MR

Avviso di Spedizione **D-VI6026310**
Lieferanweisung/Packing list/B

Marca **V1741**
Markenbezeichnung
Design/Marken

Punzonatura: **630**
Kennzeichnung
Stamping
Markierung

SPECIFICHE :	Notes
Anforderungen / Requirements / Exigences	Anzeichnungen / Notes / Notes
3174-04 38 630 H1150 AGED AISI 630 AMS 2303 F. AMS 5643 Y S17400 H1150 ASME SA564 2015 S17400 H1150 (0) ASTM A564 2013 S17400 H1150	(0)SECTION II PART A 2015 EDITION

Tolleranza ASTM A484-16 TABLE 7							
Tolerance/Allowance/Tolerance							
Pos. nr. Pos. nr. to be prior	Oggetto Größenband Werkstoff dimensions Design of product	Dimensioni - in Abmessungen Dimensions Dimension	Lunghezza - in Länge Length Länge	Colata Schmelze Melt Casting	Pezzi Stücken Pieces Pieces	Peso - LB Gewicht Weight Poids	Lotto nr. Losn. Lot nr. Lot nr.
0010	Round	1.5000	153/ 153	266616	68	5.164	619312310

TEST ALLO STATO DI FORNITURA										
Test on delivery condition / Prüfung auf lieferbarem produkt / Test a l'état de fourniture / Prueba sobre el material así como entregado										
TEST	Provette/ Probes Specimen/Éprouvette Long. diam. Cpsa Stress Diam. DCS Weld Diam. Thickness Long. diam. space	°F	Posiz. Sagge Position Position	Sneramento Seizgrigie Yield Stress Limite élastique Rp 0,2%	Sneramento Seizgrigie Yield Stress Limite élastique	Resistenza Zugfestigkeit Tensile strength Resistance à traction Rm	Allungamento Dehnung Elongation Allongement	Strizione Emmahlung Reduction of area Section	Resilienza Resilienz Impact Value Pendence	Durezza Härte Hardness Dureté HB
Valori richiesti Anforderungen/Prüfungswerte Values demanded	min max			105	-	135	-	16	-	50
A	12,5	68	L	117		143	23	62		311

Test On Delivering Condition			
Test on delivery condition / Prüfung auf lieferbarem produkt / Test a l'état de fourniture / Prueba sobre el material así como entregado			
TEST	min	max	
A HRC	28,0	32,8	

TEST ALLO STATO DI FORNITURA			
Test on delivery condition / Prüfung auf lieferbarem produkt / Test a l'état de fourniture / Prueba sobre el material así como entregado			
TEST	min	max	
A Delta Ferrite		5,0	0 %
A RATINGS FREQUENCY		1,10	0
A RATINGS SEVERITY		1,05	0



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 29 z.i.
Telefono 0444.968211 - Fax 0444.968336
Stab: 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a: **EN 10204 (2004), 3.1**

Neuch/According to Selva

Certificato nr. **MEST944876 / 2016 /**

Prüfung/Exam/Esse

Cliente / Besteller/Purchaser/Client
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801 - FORT WAYNE, IN 46801 - US

Stato di fornitura: **Hot rolled Polished Aged Peeled**
Lieferzustand
Delivery state
Etat de livraison

Produttore:
Hersteller/Hersteller/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Ordine nr: **50080 390024 CASTLE**
Bestell
Your order
Commande

Tipo di Elaborazione: **E-AOD**
Erschmelzungen
Melting process
Mode d'élaboration

Marchi di Fabbrica:
Zeichen des Lieferanten
Trade marks
Sigles de l'usine productrice



Conferma ordine nr: **EI16007345**
Werkst./Our Order/Ref. nr.

Qualità: **T-630 H1150 #39894**
Werkstoff/Grade/Type

Punzione del Collaudatore
Stempel des Werkstoffverständigen
Inspector's stamp/Pointon de l'inspecteur

MR

Avviso di Spedizione: **D-VI16026310**
Versand/Packing note

Marca: **V174/1**
Markenbezeichnung
Brand / Marque

Punzonatura: **630**
Kamprzeichnung
Marking
Marquage

Til Lyngdusmålning: Titrationsanalyse, Or-Tangentialmagnet										
TEST	Prove/Prüfung Longitudinale Brinell Hard. Data Wahl Hard. Thickness Long diam. core max	σ _F	Proof Stress max min max	Resilienza Kerschlagversuch Impact Value Resilience KV KJ/m ²			Espansione laterale Lateral Expansion Lateral ex mm/mm			Shear mm/mm
Valori richiesti Anforderungen/Required values Valeurs demandées		min max		30	30	30	-	-	-	-
B	10X10	68	L	167	165	162	1.523	1.525	1.519	

Mechanical properties according to ASTM A378.
Delta Ferrite according to AMS 2315

Analisi chimica Chemische Zusammensetzung/Chemical Analysis/Analyse chimique												
Coasta / Steel Schmelze/Coil	min - max	0.070	1.00	1.00	15.00 17.50	0.50	3.00 5.00	3.00 5.00	0.040	0.030	-	-
	C %	Si %	Mn %	Cr %	Mo %	Cu %	Ni %	P %	S %	Ta %		
266616	0.036	0.44	0.55	15.55	0.17	3.27	4.70	0.025	0.025	0.0008		
Coasta / Steel Schmelze/Coil	min 0°C max	0.450	0.150 0.450	-	-	-	-	-	-	-	-	-
	Cb(Nb)%	Nb%+Ta%										
266616	0.295	0.295										

Macro etch test : satisfactory.
Furnace calibrated according to AMS-H-5675.
Pyrometry in accordance with AMS2750.
Reduction ratio = 27,1 : 1
Material solution annealed 1904°F for 1 h,
air cooled to below 90°F.
Age-hardened 1150°F for 4 h, air cooled to below 90°F
Material is DFARS Compliant

Sono state soddisfatte tutte le condizioni richieste
Die gestellten Anforderungen sind z. Anlage erfüllt
The material has been furnished in accordance with the requirements
Le matériel a été fourni conforme aux exigences

Controllo antimescolanza: OK
Verwechslungsprüfung: spezialanalytisch durchgeführt
Antomixing testing performed: OK
Contrôle antimeslange: OK

Controllo visivo e dimensionale: soddisfa le esigenze
Beachtung und Abmessung: ohne Beanstandung
Visual inspection and dimensional checks satisfactory
Contrôle visuel et dimensionnel: satisfaisant

Vicenza, 24/10/16

VC0008 - MEST944876

(Mod MCE2)

Il collaudatore di stabilimento / der Werkstoffverständige / Works Inspector / L'agent d'usine

M. Rizzotto

Pagina - 2 di 3



Acciaierie Valbruna S.p.A.

36100 VICENZA (Italia) - Viale della scienza, 25 z.l.
Telefono 0444.968211 - Fax 0444.963636
Stab. 39100 BOLZANO (Italia) - Via A. Volta, 4/37
Telefono 0471.924111 - Fax 0471.924497

CERTIFICATO DI COLLAUDO - ABNAHMEPRUEFZEUGNIS - INSPECTION CERTIFICATE - CERTIFICAT DE RECEPTION

In conformità a **EN 10204 (2004) , 3.1**

Recd/According to/Sehon

Certificato nr. **MEST944876 / 2016 /**

Prüfung/Test/Essai

Cliente / Besteller/Purchaser/Client
VALBRUNA STAINLESS INC.
2400 TAYLOR STREET WEST
46801 - FORT WAYNE, IN 46801 - US

Stato di fornitura Hot rolled Polished Aged Peeled
Lieferzustand
Delivery state
Etat de livraison

Produttore
Hersteller/Hersteller/Usine productrice
ACCIAIERIE VALBRUNA S.P.A.

Ordine nr. 50080 390024 CASTLE
Bestell
Your order
Commande

Tipo di Elaborazione **E+AOD**
E-Lösungsmittel
Melting process
Mode d'élaboration

Marchi di Fabbrica
Zeichen des Lieferanten
Trade marks
Siget de l'usine productrice



Conferma ordine nr. **EI16007345**
Werkst/Our Order/Ref nr.

Qualität: **T-630 H1150 #39894**
Werkstoff/Grade/Alliance

Punzone del Collaudatore
Stempel des Werkstoffverständigen
Inspector's stamp/Pointon de l'essayeur

MR

Avviso di Spedizione **D-VI16026310**
Lieferanzettel/Packing label

Marca: **V174/1**
Markenbezeichnung
Brand / Nuance

Punzonatura: **630**
Markenzeichnung
Marking
Marquage

Melted and manufactured in Italy No welding or weld repair Material free from Mercury contamination

We declare that the finished product is checked for radioactive contamination through Portal System when it leaves the production plant.

QUALITY MANAGEMENT SYSTEM CERTIFIED BY LLOYD'S REGISTER ACCORDING TO ISO 9001 : 2008, ISO/TS16949 : 2009, AS 9100C

The Quality Management System is Certified acc. Pressure Equipment Directive [97/23/EC] Annex 1, s. 4.3 and 2014/68/EU by TUEV and LLOYD'S
Any act of tampering, modification, alteration, counterfeiting and/or falsification and/or any other action which modifies the contents of this test certificate shall constitute a violation of applicable civil and criminal laws. Acciaierie Valbruna shall protect its rights and interests before any competent court, authority and jurisdiction.

Maximal and/or Valplus grades/products are manufactured with ladle techniques to control composition, distribution, size and shape of non-metallic inclusions for improved machinability.

The supplied product conforms to requirements expressly requested by the purchaser and conforms to requirements specified by certified norms and standards. Should the product be used for more severe, critical and/or in any case different applications than those the material is generally intended for, any different and/or supplementary requirements shall be specifically demanded at least, upon order of the Product by the Purchaser. Acciaierie Valbruna SpA shall not be responsible for any improper use of the Products.

Vicenza, 24/10/16

VCQ008 - MEST944876

(Mod. MCE2)

Il collaudatore di stabilimento / der Werkstoffverständige / Works Inspector / L'agent d'usine

M. Rizzotto

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SPECIFICATION CONTROL DRAWING

PURCHASE MATERIAL (17-4 PH / S17400 / TYPE 630 SS ROUND BAR
GRAIN MUST BE ALONG LENGTH OF BAR
MINIMUM YIELD STRENGTH PER TABLE
MINIMUM ULTIMATE STRENGTH PER TABLE

SPECIFICATION: AMS 5643 OR ASTM A564

PART NUMBER: M17-4-HHHH-R X.XXX WHERE: HHHH SPECIFIES THE MATERIAL CONDITION (PER TABLE BELOW)
COND O.D. X.XXX = DIAMETER (IN INCHES)

MATERIAL CONDITION TABLE:

CODE	CONDITION	MIN YIELD TENSILE STRENGTH (KSI)	MIN ULTIMATE TENSILE STRENGTH (KSI)
(OMITTED)	NONE SPECIFIED (CONDITION A NOT ACCEPTABLE)	100	150
H900	H900	170	190
H925	H925	155	170
H1025	H1025	145	155
H1075	H1075	125	145
H1100	H1100	115	140
H1150	H1150	105	135
CONDA	CONDITION A (SOLUTION TREATED)		

NOTES: MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
TENSION OR SHEAR APPLICATIONS IN COLD WEATHER CONDITIONS
MATERIAL IN H900 AND H925 CONDITION NOT RECOMMENDED FOR
APPLICATIONS WHERE STRESS CORROSION CRACKING IS POSSIBLE
CONDITION A NOT TO BE USED IN DESIGN FOR FINAL PRODUCT AND
SHOULD ALWAYS BE HEAT TREATED

EXAMPLES:

PART NUMBER
4.000" DIAMETER BAR MINT UTS = 150 KSI, MIN YTS = 100 KSI
2.500" DIAMETER BAR H900 CONDITION
3.250" DIAMETER BAR H1025 CONDITION
0.750" DIAMETER BAR A CONDITION

RELEASED
2017-10-31
E(m17-728)

APPROVED

C	ADDED MATERIAL CONDITION (CIR17-107)	NO	17.09.14
B	REFORMAT DWG S17400 TYPE 630 ADDED TO PURCHASE MATERIAL (2N D5-1), ADD A564 SPEC (C8-1).	VS	10.05.20
A	NEW ISSUE	CP	05.03.16
REV.	DESCRIPTION	BY	DATE
DESIGN	NO		
DRAWN	NO		
CHECKED	CP		
MFG. APPR.	RA		
APPROVED	WM		
DE APPR.	CP		
DATE	17.09.14		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWING NO. M17-4-R			
TITLE 17-4 SS ROUND BAR			
REV. C SHEET 1 OF 1			
SCALE NTS			

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: M17-4-H1150-R1.500
 DATE: 12/11/06

PO / BATCH NO.: P0041430/S125171

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 12.7554
 QUANTITY INSPECTED: 12.7554
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 1.500"
 THICKNESS RECEIVED: 1.500"
 SHEET SIZE ORDERED: -
 SHEET SIZE RECEIVED: -

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y <input checked="" type="checkbox"/> N	
CORRECT FINISH	<input checked="" type="checkbox"/> Y N	
CORROSION	Y <input checked="" type="checkbox"/> N	
CORRECT GRAIN DIRECTION	<input checked="" type="checkbox"/> Y N	
CORRECT MATERIAL PER M-DRAWING	<input checked="" type="checkbox"/> Y N	AMS 5643
CORRECT THICKNESS	<input checked="" type="checkbox"/> Y N	
PHOTO REQUIRED	Y <input checked="" type="checkbox"/> N	
CORRECT REF # TO LINK CERT	<input checked="" type="checkbox"/> Y N	M-266616
CORRECT MATERIAL IDENTIFICATION	<input checked="" type="checkbox"/> Y N	
CORRECT M# ON THE MATERIAL	<input checked="" type="checkbox"/> Y N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y <input checked="" type="checkbox"/> N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y <input checked="" type="checkbox"/> N	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>12/11/06</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in